

CLAIMS

1. Composite detergent particles prepared by dry-blending:

5 detergent additive particles (a) comprising 30 to 100% by weight of two or more kinds of water-soluble substances, and further optionally comprising less than 10% by weight of a surfactant and/or 70% by weight or less of a water-insoluble substance, the detergent additive particles having an average particle size of from 150 to 600 μm , a bulk density of 300 to 1000 g/L, and wherein the detergent additive particles have a dissolution rate of 90% or more, under
10 conditions where the detergent additive particles are supplied in water at 5°C; stirred for 60 seconds under the stirring conditions that 1 g of the detergent additive particles are supplied to a 1-L beaker (inner diameter: 105 mm) which is charged with 1-L of hard water (71.2 mg CaCO_3/L , a molar ratio of Ca/Mg: 7/3), and stirred with a stirring bar (length: 35 mm, and diameter: 8 mm) at a
15 rotational speed of 800 rpm; and filtered with a standard sieve having a sieve-opening of 74 μm as defined by JIS Z 8801, wherein the dissolution rate of the detergent additive particles is calculated by Equation (1):

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$$\text{Dissolution Rate (\%)} = \{1 - (T/S)\} \times 100 \quad (1)$$

20 wherein S is a weight (g) of the detergent additive particles supplied; and T is a dry weight of insoluble remnants of the detergent additive particles remaining on the sieve when an aqueous solution prepared under the above stirring conditions is filtered with the sieve; and

25 detergent particles (b) having an average particle size of from 150 to 600 μm and a bulk density of 500 to 1000 g/L, and comprising 10 to 50% by weight of a surfactant.

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2. The composite detergent particles according to claim 1, wherein the detergent additive particles (a) have a microporous capacity of 0.2 mL/g or more and 1.2 mL/g or less at 0.01 to 4 μm as determined by mercury porosimetry.

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3. The composite detergent particles according to claim 1 or 2, wherein the detergent additive particles (a) comprise a particle capable of releasing a bubble of a size of 1/10 or more the particle size from an inner portion of the particle, when dissolving the particle in water.

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4. The composite detergent particles according to any one of claims 1 to 3, wherein the detergent additive particles (a) comprise a particle having a structure that there exists a hollow in an inner portion thereof, and that a particle surface is opened and communicated with the hollow in the inner portion.

5. The composite detergent particles according to any one of claims 1 to 4, wherein the detergent additive particles (a) comprise a particle having a localized structure such that a composition in its inner portion is different from that near its surface.

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6. The composite detergent particles according to any one of claims 1 to 5, wherein the detergent additive particles (a) are obtainable by a step of spray-drying an aqueous solution or suspension which comprises a water-soluble substance, and further optionally comprises a surfactant and/or a water-insoluble substance.

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7. The composite detergent particles according to any one of claims 1 to 6, wherein the detergent additive particles (a) comprise a water-soluble polymer as the water-soluble substances.

8. A granular detergent composition comprising 50 to 100% by weight of the composite detergent particles of any one of claims 1 to 7.

9. Detergent additive particles (a) comprising 30 to 100% by weight of two or more kinds of water-soluble substances, and further optionally comprising less than 10% by weight of a surfactant and/or 70% by weight or less of a water-insoluble substance, the detergent additive particles having an average particle size of from 150 to 600 μm , a bulk density of 300 to 1000 g/L, and wherein the detergent additive particles have a dissolution rate of 90% or more, under conditions where the detergent additive particles are supplied in water at 5°C; stirred for 60 seconds under the stirring conditions that 1 g of the detergent additive particles are supplied to a 1-L beaker (inner diameter: 105 mm) which is charged with 1-L of hard water (71.2 mg CaCO_3/L , a molar ratio of Ca/Mg: 7/3), and stirred with a stirring bar (length: 35 mm, and diameter: 8 mm) at a rotational speed of 800 rpm; and filtered with a standard sieve having a sieve-opening of 74 μm as defined by JIS Z 8801, wherein the dissolution rate of the detergent additive particles is calculated by Equation (1):

$$\text{Dissolution Rate (\%)} = \{1 - (T/S)\} \times 100 \quad (1)$$

wherein S is a weight (g) of the detergent additive particles supplied; and

T is a dry weight of insoluble remnants of the detergent additive particles

remaining on the sieve when an aqueous solution prepared under the above stirring conditions is filtered with the sieve.

10. The detergent additive particles according to claim 9, wherein the
5 detergent additive particles (a) have a microporous capacity of 0.2 mL/g or more and 1.2 mL/g or less at 0.01 to 4 μm as determined by mercury porosimetry.

11. The detergent additive particles according to claim 9 or 10, wherein the
10 detergent additive particles (a) comprise a particle capable of releasing a bubble of a size of 1/10 or more the particle size from an inner portion of the particle, when dissolving the particle in water.

12. The detergent additive particles according to any one of claims 9 to 11,
15 wherein the detergent additive particles (a) comprise a particle having a structure that there exists a hollow in an inner portion thereof, and that a particle surface is opened and communicated with the hollow in the inner portion.

13. The detergent additive particles according to any one of claims 9 to 12,
20 wherein the detergent additive particles (a) comprise a particle having a localized structure such that a composition in its inner portion is different from that near its surface.

14. The detergent additive particles according to any one of claims 9 to 13,
25 wherein the detergent additive particles (a) are obtainable by a step of spray-drying an aqueous solution or suspension which comprises a water-soluble

substance, and further optionally comprises a surfactant and/or a water-insoluble substance.

15. The detergent additive particles according to any one of claims 9 to 14, wherein the detergent additive particles (a) comprise a water-soluble polymer as the water-soluble substances.

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